

STUDIES IN OLD WORLD FORFICULIDS OR EARWIGS,
AND BLATTIDS OR COCKROACHES.

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The notes contained in the following pages are based on material in the collections of the Academy of Natural Sciences of Philadelphia, and of the United States National Museum.

The Hirase material from Japan, the Harrison and Hiller collection from Sumatra, the Abbott material from Trong, Siam, and the collections made by Koebele of Australian and New Zealand forms were the larger faunal collections examined.

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Family FORFICULIDÆ.

Genus LABIDURA Leach.

1815. "*Labidura* LEACH, Edinb. Encycl., IX, p. 118."

Type.—"*Labidura gigantea*" = *Forficula riparia* Pallas.

LABIDURA HUSEINÆ (Rehn.)

1901. *Apterygida huseina* REHN, Proc. Acad. Nat. Sci. Phila., p. 273; Sheikh Husein, Gallaland, Africa.

On second examination this species is seen to be a member of the genus *Labidura* and to represent a form of the *riparia* group. The recent treatment of this group by Kirby^a is substantiated as far as our material goes.

This species belongs to the same section of the group as *incermis* Brunner, *marginella* Costa, *auditor* Scudder, *crenata* Olivier, and *suturalis* Burmeister. From *incermis* it differs in having the internal border of the male forceps more heavily dentate, the median tooth being very distinct; from *marginella* it differs in the somewhat larger size and crenulate basal section of the male forceps; from *auditor* in

^aAnn. and Mag. Nat. Hist., 7th ser., XI, pp. 63-66.

the shape of the forceps, which are curved upward, and in the moderately dentate character of the internal margin of the same; from *crenata* in the unequal and less extensive crenulations on the internal margin of the female forceps, and very different coloration; while from *saturalis* Burmeister it is separable by the crenulate character of the internal margin of the female forceps, as well as the smaller size.

The nominal African species of this group, with their type localities, are as follows:

Labidura auditor Scudder. [Natal.]

Labidura bengalensis Dohrn. [Bengal.]

Kirby^a considers a specimen from Sokotra as probably representing this form.

Labidura crenata (Olivier). [South Africa.]

Labidura herculeana (Fabricius). [St. Helena.]

Labidura huseinæ (Rehn). [Sheikh Husein, Gallaland.]

Labidura pallipes (Fabricius). [Cape Verde Islands.]

Labidura terminalis Serville. [Mauritius.]

Genus ANISOLABIS Fieber.

1853. *Anisolabis* FIEBER, Lotos, III, p. 257. Included *A. maritima* and *mæsta*.

ANISOLABIS STÅLI (Dohrn).

1864. *F[orcinella] stali* DOHRN, Entom. Zeitung, Stettin, XXV, p. 286; Java.

One female; Batu Sangkar, Padangsche Bovenland, Sumatra. August and September, 1901. (A. C. Harrison, jr., and Dr. H. M. Hiller.) [A. N. S. Phila.]

This species appears to be broadly distributed through the Malayan region, reaching Hindostan and Farther India, besides being recorded from the island of Nossi-Bé, off the northwest coast of Madagascar.

Genus APTERYGIDA Westwood.

1840. *Apterygida* WESTWOOD, Introd. Class Ins., Synop. Gen., p. 44.

Type.—*Forficula pedestris* Bonelli=*albipennis* Megerle von Muehlfeld.

APTERYGIDA ATHYMIA, new name.

1880. *Forficula japonica* DE BORMANS (not of De Haan, 1842), Anales Soc. Españ. Hist. Nat., IX, p. 512; Japan, on seashore.

Three specimens; one damaged, sex unknown, and two immature females; Japan.^b (Dr. H. C. Wood.) [A. N. S. Phila.]

^a Ann. and Mag. Nat. Hist., 7th ser., XI, p. 64.

^b Dr. Wood has very kindly given me the following information regarding the specimens collected by him in Japan: My collections were all made in the district bounded by Kioto on the south and Nikko or Tokio on the north, going well back into the center of the country, as we made the trip along the Nakasendo road, the old highroad in Japan between North and South Japan, running along the central ridge of the island.

As De Bormans' name is preoccupied by De Haan's *Pezomachus gigantea* var. *japonica*,^a a new name is required, and I propose that of *athymia* in relation to the rather weak build of the insect.

The immature individuals are rather darker in general coloration than the mature specimen.

Family BLATTIDÆ.

Subfamily ECTOBIINÆ.

Genus ECTOBIUS Stephens.

1835. *Ectobius* STEPHENS, Illust. Brit. Entom., Mandib., VI, p. 45.

Type.—By elimination and selection. *Blatta lapponicus* Linnaeus.^b

ECTOBIUS MAORI, new species.

Type.—Male; New Zealand. (Koebele.) [Cat. No. 6943, U.S.N.M.]

Allied to *E. tasmanicus* Brancsik^c and *E. marcidus* Erichson^d from Tasmania. From *tasmanicus* it differs in the general larger size, and in the very much larger pronotum, which also bears a different disk pattern. From *marcidus* it differs in the smaller size, and the lighter abdomen. The description of the latter species is very imperfect.

Size small; form elongate elliptical; surface moderately polished. Head projecting beyond the pronotum; the interspace between the eyes about twice that between the ocelli; eyes subreniform; antennae not quite equaling the body in length. Pronotum transverse, the greatest width posterior; anterior margin subtruncate; posterior margin broadly arcuate; lateral margins arcuate, the anterior angles not at all apparent, the posterior angles obtusely rounded; lateral portions rather abruptly depressed. Tegmina reaching to the tip of the abdomen, lanceolate, apex rather blunt; basal field rather broad, short, but slightly exceeding one-fourth the tegmina in length, subcoriaceous; discoidal vein extending to the tip of the tegmen, costal branches numerous and rather regular; anal sulcus arcuate, slightly

^a Verh. Natur. Gesch. Nederl. Overz. Bezitt., Orth., 1842, p. 240.

^b The originally included species are as follows:

germanicus—*Phyllodromia* Serville, 1839.

pallens.

lapponicus.

perspicillaris.

Panzeri.

nigripes.

tividus.

pallidus?

Of the seven uneliminated species *lapponicus* can readily be selected as the type, as Brunner figured this species and it is the best known.

^c Jahresheft Naturwiss. Verein. Treneséner Comit., XVII-XVIII, 1895, p. 244, pl. vii, fig. 1.

^d Archiv. f. Naturgesch., VIII, Pt. 1, 1842, p. 248.

sinuate about the middle of its length, anal field subpyriform in outline. Wings equaling the tegmina in length. Supra-anal plate transverse; apical margin subtruncate, the median portion produced into a blunt, rounded process. Cerci fusiform, bluntly acuminate, moderately depressed, exceeding the subgenital plate by half their length. Subgenital plate rotundate, the apex produced into an acuminate process. Limbs rather robust. Anterior femora with three median, two apical spines, and five minute spines between the other groups on the anterior margin: the apical spines very large, genicular spines short and stout: tibiæ slightly shorter than the femora; tarsi about equal to the tibiæ in length. Median femora with seven evenly distributed spines on the anterior margin, the apical and median exceeding the other in size; genicular spine very long, slender, and curved; tibiæ not quite equaling the femora in length; tarsi slightly exceeding the tibiæ in length and about equal to the femora. Posterior femora with four large spines on the distal portion of the anterior margin, the apical exceeding the others in size; genicular spine slender, elongate, and curved; tibiæ equal to the femora in length; tarsi slightly shorter than the tibiæ, the metatarsi exceeding the other joints in length, arolia moderately large.

General color ochraceous brown of two tints. Head rufescent brown, eyes pale. Pronotum with the disk bearing a complicated pattern of the darker tint on the paler, margin subpellucid. Tegmina with the basal field, costal margin, and veins and nervures of the paler tint on the darker. Limbs of the pale tint mottled with the darker.

MEASUREMENTS.

	<i>mm.</i>
Length of body	8.5
Length of pronotum	2.3
Posterior width of pronotum	3
Length of tegmina	6.5
Greatest width of tegmina	2.5

Two additional specimens of the species from the type locality were also examined.

Genus ANAPLECTA Burmeister.

1838. *Anaplecta* BURMEISTER, Handb. d. Entom., II, p. 494.

Included *A. minutissima* (De Geer), *lateralis* Burmeister, *dorsalis* Burmeister, and *unicolor* Burmeister.

ANAPLECTA PLATYCEPHALA, new species.

Type.—Female; Cairns, Queensland. (Koebele.) [Cat. No. 6944, U.S.N.M.]

This species appears to be allied to *A. fulva* Brunner,^a from Burma, but differs in the wholly hyaline tegmina and the different proportions of the pronotum.

^a Ann. Mus. Civ. Stor. Nat. Genova, XXXIII, 1893, p. 12.

Size rather small; form ovate. Head strongly depressed, with the anterior margin arcuate, projecting considerably beyond the pronotum; interspace between the eyes slightly less than the long diameter of the eye; eyes elongate reniform. Pronotum transverse, depressed, hemispherical; anterior margin shallowly and broadly emarginate; posterior margin rotundato-truncate; lateral margins obtusely rounded. Tegmina lanceolate, apex subacute, costal margin more arcuate than the sutural; basal field very broad, occupying almost half the basal width of the tegmina, extending about two-thirds the length of the tegmen, but the distal half narrowed by the mediastine vein, and not more than half the basal width; discoidal vein straight, extending to the apex of the tegmen; costal veins regularly disposed, arcuate, the convexity toward the apex of the tegmen; anal sulcus indistinct arcuate, joining the sutural margin at a point distant one-third the entire length from the base. Wings about equal to the tegmina in length when in repose. Supra-anal plate rather small, triangularly produced, apex deeply and narrowly fissate. Cerci elongate, narrow, moderately depressed, apex bluntly acuminate. Subgenital plate produced, broadly channeled, apex truncate. Posterior tibiae slightly exceeding the femora in length.

General color pale ochraceous hyaline, suffused on the disk of the pronotum; costal margin of the wings and body with reddish ochraceous; eyes umber.

MEASUREMENTS.

	<i>mm.</i>
Length of body	8.5
Length of pronotum	2
Greatest width of pronotum	3.6
Length of tegmina	7.5
Greatest width of tegmina	3

Subfamily PSEUDOMOPINÆ^a (*Blattinæ* Auct.).

Genus BLATTELLA Caudell (*Phyllodromia* Auct.).

1903. *Blattella* CAUDELL, Proc. Ent. Soc. Wash., V, p. 234.

Type.—*Blatta germanica* Linnæus.

BLATTELLA GERMANICA (Linnæus).

1767. [*Blatta*] *germanica* LINNÆUS, Syst. Nat., 12th ed., p. 688. [Denmark.]

Four specimens; three females, one immature individual.

Chemulpo, Korea (Dr. W. H. Jones) [A. N. S. Phila.]. Kioto, Japan (Y. Hirase) [A. N. S. Phila.], no. 38. Japan (Koebele) [U.S.N.M.]. Trong, Lower Siam (Dr. W. L. Abbott) [U.S.N.M.].

^a According to Rehn, Trans. Amer. Ent. Soc., XXIX, 1903, p. 260.

Genus ELLIPSIDION Saussure.

1864. *Ellipsoidion* SAUSSURE, Mélanges Orthoptérologiques, I, p. 18.

— *Apolyta* Brunner, Nouv. Syst. Blatt., p. 112, 1865.

Type.—*Thyrsocera australis* Saussure = *Apolyta pellucida* Brunner.

ELLIPSIDION HISTRIONICUM, new species.

Type.—Male; Australia. (Koebele.) [Cat. No. 6945, U.S.N.M.]

Apparently allied to *E. australe* Saussure^a (= *pellucida* Brunner) and *E. quadripunctatum* Tepper.^b From the former it differs in the truncate posterior margin and general shape of the pronotum, the longer antennæ, and the brownish instead of blackish limbs. From *quadripunctatum* it differs in the larger size and the indefinite character of the maculations on the pronotum.

Size medium; form ovoid, the apex posterior. Head slightly projecting beyond the pronotum, anteriorly truncate; interspace between the eyes exceeding the long diameter of one of the latter; eyes reniform; lower surface of head deplanate; antennæ about equal to the body in length, closely and densely plumose. Pronotum transverse, subovate; anterior margin narrow, truncate; posterior margin truncate, about twice the width of the anterior margin; lateral margins obtusely angulate, anterior angle well rounded, posterior angle broadly obtuse; pronotum as a whole arched transversely. Tegmina elongate, subparallel, extending a considerable distance beyond the tip of the abdomen; apex bluntly angulate; basal field equal to one-third the length of the tegmina, coriaceous in character; discoidal vein arcuate basally, extending to the apex of the tegmen, costal veins regularly disposed, diagonal; anal sulcus arcuate basally, anal field subpyriform. Wings equal to the tegmina in length when in repose; apex narrowly rounded, costal margin arcuate, proximal costal veins apically incrasate; ulnar vein with five complete rami. Abdomen with the lateral angles of the segments slightly produced posteriorly. Supra-anal plate broad, shallow, triangularly produced, apex with a shallow V-shaped fissure. Cerci lanceolate, depressed, apex acuminate. Subgenital plate triangularly produced, apex deeply and narrowly fissate. Anterior femora with one large apical spine on the external margin; posterior margin with three spines in the distal half, the apical one largest, genicular spine large; tibiæ not equal to the femora, but equaling the tarsi in length. Median femora with seven spines on the anterior margin, the apical one surpassing the others in size, posterior margin with five spines, the apical surpassing the others, genicular spine strong; tibiæ very slightly shorter than the femora; tarsi slightly shorter than the tibiæ. Posterior femora with the anterior

^a Mélanges Orthoptérologiques, I, p. 18.

^b Trans. and Proc. and Rep. Royal Soc. South Aust., XVII, p. 45.

and posterior margins each armed with six evenly disposed spines, genicular spine strong; tibiae slightly exceeding the femora in length; tarsi about two-thirds the length of the tibiae, arolia large.

General color orange ochraceous. Head with the lower surface black; eyes, interspace between the same and antennae deep red-brown. Pronotum with the disk reddish orange, with an overlaid irregular pattern of dull brownish. Tegmina of the general tint, veins and nervures subpellucid. Wings of the general tint strongest on the costal margin, the apex with a suffusion of umber. Abdomen above blackish brown; beneath, the same tint, each segment, except the apical ones, margined both posteriorly and laterally with cream color; cerci straw yellow. Coxae blackish brown with a narrow lateral margin of cream color. Femora, tibiae, and tarsi, red-brown, the femora with blackish-brown genicular patches.

MEASUREMENTS.

	<i>mm.</i>
Length of body	11.5
Length of pronotum	3.5
Greatest width of pronotum	5.8
Length of tegmina	13.1
Greatest width of tegmina	5

Genus THYRSOCERA Burmeister.

1838. *Thyrsocera* BURMEISTER, Handb. der Ent., II, p. 498.

— *Hemithyrsocera* SAUSSURE, Societas Entomologica, VIII, 1893, p. 57.

Of the ten included species (*spectabilis*, *crinicornis*, *cineta*, *affinis*, *flavipes*, *laticornis*, *histrion*, *oblongata*, *annulicornis*, and *hirticornis*) all are congeneric with *oblongata* (the type of *Pseudomojops* Serville), except *spectabilis* and *histrion*, of which the former may be considered the type.

THYRSOCERA NIGRA Brunner.

1865. *Th[yrso]cera* *nigra* BRUNNER, Nouv. Syst. Blatt., p. 120; East Indies.

One female; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.]
This species has also been recorded from Burma and Tenasserim.

THYRSOCERA HISTRIO Burmeister.

1838. *Thyrsocera histrion* BURMEISTER, Handb. der Entom., II, p. 499; Java.

Two males; Goenong, Soegi, Lampong, Sumatra. Oct.-Nov., 1901.
(A. C. Harrison, jr., and Dr. H. M. Hiller.) [A. N. S. Phila.]

THYRSOCERA TESSELLATA, new species.

Type.—Male (immature); Trong, Lower Siam. (Dr. W. L. Abbott.)
[Cat. No. 6946, U.S.N.M.]

This peculiar form does not appear to be closely related to any of the previously known forms.

Size small; form ovoid; apex anteriorly depressed; surface polished. Head projecting very slightly beyond the pronotum; the interspace between the eyes considerably greater than that between the ocelli; eyes reniform. Pronotum with the greatest width posteriorly; anterior margin narrow, truncate; posterior margin subtruncate, three times the width of the anterior margin; lateral margin arcuate, anterior angles well rounded, posterior angles narrowly rounded. Abdomen strongly depressed, each segment of the lateral margin slightly projecting posteriorly; ventral segments, except the two apical ones, bearing evenly distributed longitudinal folds, which extend about the whole depth of the segment. Supra-anal plate transverse, very slightly produced, apex very slightly and very shallowly emarginate. Cerci fusiform, very slightly depressed, the apex acuminate, supplied with long stiff bristles. Subgenital plate not prominent, the apical margin slightly produced, truncate; styles unequal, one stout and acuminate, the other minute. Anterior femora with twelve spines on the anterior margin, restricted to the median and distal portions, the proximal two and apical two the largest in the series; posterior margin with five spines restricted to the median and distal portions, no genicular spine; tibiae two-thirds the length of the femora; tarsi equal to the femora in length. Median femora with six spines on each margin, genicular spine slender; tibiae about equal to the femora in length; tarsi shorter than the tibiae, the metatarsi equal to the other joints in length. Posterior femora with six spines on each margin, genicular spine slender and about equal in length to the apical spine on the anterior margin; tibiae slightly exceeding the femora in length; tarsi about two-thirds the length of the tibiae, metatarsi about equal to the remaining tarsal joints in length, arolia rather small.

General color whitish gray, mottled and sprinkled with black. Head with the lower surface evenly sprinkled with spots of dark brown, interspace between the eyes with three longitudinal streaks of brown; eyes mahogany brown. Pronotum heavily blotched centrally with black, the overlying tint forming distinct spots as the lateral margins are approached, and also decreasing in size; median portion of the pronotum bearing two longitudinal streaks of whitish gray. Mesonotum and metanotum with a color pattern very similar to that of the pronotum, except for the absence of spots on the lateral portions and the infuscation of the posterior margin. Abdomen with the basic tint black, the folds of the segments and the apical portions of the two terminal segments dull grayish; ventral surface of the abdomen blackish centrally, blackish and grayish marmorate laterally. Cerci grayish, a touch of black on the basal portion of the upper surface. Limbs yellowish gray, each longitudinal marked with a single distinct line of black, which is more or less broken.

MEASUREMENTS.

	<i>mm.</i>
Length of body	7.5
Length of pronotum	2.7
Greatest width of pronotum.....	3.5

Subfamily EPILAMPRINÆ.

Genus CALOLAMPRA Saussure.

1893. *Calolampira* SAUSSURE, Societas Entomologica, VIII, p. 57.

Type.—*C. gracilis* (Brunner).^a

CALOLAMPRA GRACILIS (Brunner).

1865. *Epilampira gracilis* BRUNNER, Nouv. Syst. Blatt., p. 170, pl. IV, fig. 20; Port Adelaide and Sydney, Australia; Tasmania.

Three females; Australia. (Koebele.) [U.S.N.M.]

CALOLAMPRA PEDISEQUA, new species.

Type.—Male: Trong, Lower Siam. (Dr. W. L. Abbott.) [Cat. No. 6947, U.S.N.M.]

Allied to *C. aspera* Tepper,^b from Australia, but differing in the coloration and the differently shaped pronotum. Nothing further can be determined from Tepper's description.

Size medium; form depressed, ovate; surface rugulose. Head slightly projecting beyond the pronotum; interspace between the eyes half again as wide as that between the ocelli; lower surface of head deplanate; eyes subpyriform, the posterior portion strongly compressed; antennæ not equal to half the length of the body, third joint slightly exceeding the basal one in length. Pronotum hemispherical in outline; anterior and lateral margins arcuate; posterior margin subtruncate, slightly produced centrally; postero-lateral angles very narrowly rounded. Mesonotum and metanotum with the posterior margins concave, the latter being slightly produced in the middle, these margins bearing a transverse series of longitudinally disposed folds or scars. Abdomen with the postero-lateral angles of the segments not produced; each segment bearing a series of "scars" similar to those on the mesonotum and metanotum, though somewhat larger in size and more distinct in character; ventral surface with evenly distributed pustules. Supra-anal plate transverse, the apex broadly and shallowly emarginate. Cerci short, stout, conical, not equaling the supra-anal plate in length. Subgenital plate strongly transverse, narrow, with a moderately deep V-shaped emargination; styles minute and lateral. Anterior femora with the anterior border bearing three or four sub-

^aAccording to Rehn, Trans. Amer. Ent. Soc., XXIX, 1903, p. 274.

^bTrans. and Proc. and Rep. Royal Soc. South Aust., XVII, p. 62.

median and one apical large spine, between which groups are ranged a series of minute, comb-like spines, posterior margin with five rather even and regularly distributed spines, no genicular spine present; tibiae not quite two-thirds the length of the femora; tarsal joints about equal to the tibiae in length. Median femora with four rather short and stout spines on the anterior margin, posterior margin with five spines, no genicular spine present; tibiae almost equaling the femora in length; tarsi slightly shorter than the tibiae; metatarsi very distinctly longer than the terminal joint. Posterior femora with four well-spaced, blunt median and one apical spine on the anterior margin; posterior margin with four spines, basal one very small, none apical, genicular spine rather short, but quite distinct; tibiae exceeding the femora by about one-third the length of the latter; metatarsi about equal to the other tarsal joints in length, external face of the metatarsi bearing a longitudinal row of fine teeth, inferior face bearing two parallel, closely placed rows of the same, pulvilli triangular and apical, arolia minute.

General color wood brown. Head with the superior surface and the interocular interspace pale ochraceous, finely punctate with brown; ocelli pale ochraceous; lower surface, eyes, and antennae blackish brown. Abdomen with the "sears" slightly darker in color than the surrounding tint. Femora darker in color than the other portions of the limbs; trochanters very pale wood brown.

MEASUREMENTS.

	mm.
Length of body	23
Length of pronotum.....	6
Length of pronotum.....	10.5
Greatest width of abdomen	12.7

Genus EPILAMPRA Burmeister.

1838. *Epilampira* BRUNNER, Handb. d. Entom., II, p. 504.

Type.—*E. nebulosa* Burmeister.^a

EPILAMPRA TRONGANA, new species.

Types.—Male and female: Trong, Lower Siam. (Dr. W. L. Abbott.) [Cat. No. 6948, U.S.N.M.]

Allied to *E. lineaticollis* Bolivar,^b from Trichinopoly, and *E. geminata* Brunner,^c from Kina Balu, Borneo. From the former it differs in the very different coloration and from the latter in the non-emarginate apex of the tegmina. The description of the latter is so unsatisfactory that little can be made out of it. The common

^a According to Rehn, Trans. Amer. Ent. Soc., XXIX, 1903, p. 271.

^b Ann. Soc. Ent., France, LXVI, p. 298.

^c Abhandl. Senckenb. Naturforsch. Gesellsch., XXIV, Pt. 2, p. 208.

East Indian species *E. nebulosa* Burmeister differs in the form of the pronotum, the elongate anal field of the tegmina, the more acuminate apex of the tegmina, and the broader subgenital and more rounded supraanal plates of the male.

Male.—Size medium; form elongate-ovate. Head projecting considerably beyond the pronotum, the anterior margin subtruncate; interspace between the eyes and that between the ocelli equal; ocelli large, touching the eyes; eyes irregularly reniform, the greatest depth anteriorly; antennae not quite equaling the body in length. Pronotum heptagonal; anterior margin truncate; posterior margin obtuse angulate; postero-lateral margins shorter than any of the others; all angles blunt and rounded; lateral portions of the pronotum depressed. Tegmina elongate, considerably exceeding the apex of the abdomen; costal margin gently arcuate, sutural margin straight, apex very obtusely rounded; basal field equal to one-third the length of the tegmina; costal veins numerous and sublongitudinal in character; ulnar vein with seven distinct rami; anal sulcus very slightly arcuate, anal field reaching two-fifths the way to the apex of the tegmen. Supra-anal plate produced, bilobate, the centrally fissure quite deep. Cerci broken. Subgenital plate produced, subtruncate. Anterior femora with five large median, one apical, and an intermediate series of minute spines on the anterior margin, posterior margin with five medium-sized spines, no genicular spine present; tibiae about three-fourths the length of the femora; tarsi exceeding the tibiae and not equaling the femora in length. Median femora with four evenly distributed spines on the median and distal portions of the anterior margin, posterior margin with four spines, none of which are apical, genicular spine rather short; tibiae equal to the femora in length; tarsi considerably shorter than the femora, metatarsi almost equal to the remaining tarsal joints. Posterior femora with four spines on each margin, genicular spine of moderate size; tibiae one and one-fourth the length of the femora; tarsi three-fifths the length of the tibiae, metatarsi equal to the remaining joints in length, the two lateral and two ventral angles supplied with rows of moderate-sized teeth, pulvilli rotundate, apical, arolia triangular and of rather large size.

Female.—Size rather large. Head with the interspace between the eyes almost twice that between the ocelli; ocelli not touching the eyes; antennae equal to about three-fifths the length of the body. Pronotum similar to the male, except that the anterior and antero-lateral margins form a continuous arc. Wings equal to the tegmina in length when in repose; costal margin strongly arcuate apically, apex subangulate; ulnar vein bearing about sixteen complete rami and a number of incomplete ramifications. Supra-anal plate produced, bilobate, the fissure -shaped. Cerci elongate fusiform, depressed, apex acuminate, not equaling the supra-anal plate in length. Subgenital plate very large, rotundate;

apex with a very shallow, hardly perceptible emargination; the broad, shallow cereal emargination bordered externally by a sharp dentiform process.

General color ashy-gray brown, clouded more or less distinctly with wood brown. Head with the interorbital and the interocellar regions dark wood brown in the male, unmarked in the female; eyes and antennae dark wood brown. Pronotum without a distinct pattern, but closely and finely punctate with the darker tint; in the male the posterior margin bears several short transversely distributed longitudinal streaks of dark brown. Tegmina with the peculiar markings characteristic of the paler species of the genus; base of the discoidal vein and the entire anal sulcus brokenly marked with black. Wings with the median costal margin suffused with orange yellow, the apex with wood brown.

MEASUREMENTS.

	Male.	Female.
	<i>mm.</i>	<i>mm.</i>
Length of body.....	29.2	33
Length of pronotum.....	6.5	8.5
Greatest width of pronotum.....	8	10.2
Length of tegmina.....	29.7	35.5
Greatest width of tegmina.....	8.5	9.5

EPILAMPRA BADIA Brunner.

1865. *E[pilamptra] badia* BRUNNER, Nouv. Syst. Blatt., p. 189; Java.

Four specimens; one male, three females; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.]

EPILAMPRA MOLOCH, new species.

Type.—Female, Trong, Lower Siam. (Dr. W. L. Abbott.) [Cat. No. 6949, U.S.N.M.]

This magnificent and striking form does not appear to be closely allied to any of the previously described species of the genus. In general superficial appearance it resembles *E. badia* very closely, but it is readily differentiated by the form of the supra-anal plate and the proportions of the posterior tarsal joints.

Size large; form elongate ovate. Head projecting somewhat beyond the pronotum, anterior margin very slightly arcuate; interspace between the eyes almost twice as wide as that between the ocelli; ocelli of medium size, not touching the eye; eyes elongate, strongly compressed in the median and posterior portions; antennae almost equaling the body in length. Pronotum subheptagonal in outline; anterior and antero-lateral margins arcuate; posterior margins obtuse angulate, postero-lateral margins very short; all the angles very broadly rounded except the posterior and the lateral pair which are blunt; lateral por-

tions considerably depressed. Tegmina elongate, considerably exceeding the tip of the abdomen; costal margin broadly arcuate, apex damaged; basal field rather elongate, almost equaling the anal field in length, subcoriaceous; anal sulcus rather evenly arcuate. Supra-anal plate strongly produced, bilobate, apex of the lobes much nearer the internal than the external margin, fissure between the lobes V-shaped and moderately deep. Cerci elongate, narrow, subequal, apically acuminate, slightly depressed. Subgenital plate broad; median portion subtruncate, with two slight rounded lobes centrally, cereal emarginations slight. Anterior femora with three to five spines on the anterior margin, two of which are apical, the others median, posterior margin with four or five spines, one of which is apical, no genicular spine; tibiae two-thirds the length of the femora; tarsal joints almost equal to the femora in length, metatarsi not more than three-fifths the length of the terminal joint. Median femora bearing three or four spines on the median and distal sections of the anterior margin, posterior margin with five spines, the apical one small, genicular spine short; tibiae equal to the femora in length; tarsi equal to the tibiae or femora in length, metatarsi slightly longer than the terminal joint. Posterior femora with four subequal spines on the anterior margin, posterior margin with four spines, none of which are apical, genicular spine about equal to the other femoral spines in size; tibiae one and two-thirds the length of the femora; tarsi equal to the femora in length, metatarsi exceeding the remaining joints in length, lower surface bearing two longitudinal, subcontiguous rows of minute teeth; pulvilli triangular and apical; arolia triangular and of medium size.

General color, dark vinaceous. Head and under surface, dull ochraceous brown; tibiae and tarsi of the posterior limbs of the general tint, the larger spines with a pale median annulus. Eyes dull umber; antennae pale red-brown. Pronotum minutely punctate with blackish brown, also with a few clouded irregular blotches of red-brown along the posterior margins.

MEASUREMENTS.

	<i>mm.</i>
Length of body	49.6
Length of pronotum	11.1
Greatest width of pronotum.....	15.5
Length of tegmina.....	46+
Greatest width of tegmina	14.9

Genus RHICNODA Brunner.

1893. *Rhcnoda* BRUNNER, Ann. Mus. Civ. Stor. Nat. Genova, XXXIII, p. 30.

Included species, *R. rugosa* and *R. spinulosa* Brunner. Of these, *rugosa* may be selected as the type.

RHICNODA RUGOSA Brunner.

1893. *R[hicnoda] rugosa* BRUNNER, Ann. Mus. Civ. Stor. Nat. Genova, XXXIII, p. 31; Carin Chebà, Carin Ghecù (1,300-1,400 meters), mountains of Catein Cauri, Kokarect, Burma; Mooleyit, Tenasserim (1,200-1,400 meters); Palon Pegu; Java.

One immature female; Goenong Soegi, Lampong, Sumatra. Oct.-Nov., 1901. (A. C. Harrison, jr., and D. H. M. Hiller.) [A.N.S. Phila.]

RHICNODA DESIDIOSA, new species.

Type.—Female (immature); Trong, Lower Siam. (Dr. W. L. Abbott.) [Cat. No. 6950, U.S.N.M.]

Apparently closest allied to *R. reflexa* Saussure and Zehntner,^a from Nicaragua, from which it differs in the broader pronotum, in the larger size, and the broader supra-anal plate. No relationship exists with either of the Old World species (*rugosa* and *spinulosa* Brunner), or with *R. laminata* Brunner, from St. Vincent.

Size rather large; form ovate, depressed; surface rugose. Head completely hidden under the pronotum, anterior border subtruncate; interspace between the eyes slightly less than that between the ocelli; ocelli rather small, touching the eyes; eyes elongate, median and posterior sections strongly depressed; antennæ short, not equal to half the length of the body; lower surface of the head deplanate, the inter-antennal region concave. Pronotum transverse, subtriangular, apex anteriorly; lateral margins uncurved, meeting at an angle anteriorly; posterior margin very broadly obtuse angulate, lateral angles very narrowly rounded, the posterior margin supplied with a transverse series of nodes or folds; disk and cephalic boss of the pronotum well elevated above the comparatively flat lateral portions. Mesonotum and metanotum with their posterior margins emarginate, in the metanotum with a slight median projection, each supplied on the median portion of the posterior margin with a transverse series of eight to ten longitudinal folds. Abdomen with the lateral portions of each segment produced posteriorly, but not into a sharp dentiform process; posterior margin of each segment bearing a transverse series of longitudinally placed folds. Supra-anal plate produced, triangular, the apex with a wide triangular emargination. Cerci short, strongly depressed, apex blunt. Subgenital plate large, transverse, the median portion subtruncate, the apical region very broadly arcuate, cercal emargination slight. Anterior femora with the anterior margin bearing four or five large median, one or two large apical, and an intermediate series of very short, minute spines, posterior margin with five spines, no genicular spine present; tibiæ about half the length of the femora; tarsi equal to the tibiæ in length. Median femora bearing four or

^aBiol. Cent.-Amer., Orth., I, p. 68, pl. iv, fig. 35.

five spines on the anterior margin, one of which is apical and the others median, posterior margin with six spines, two of which are subapical, genicular spine short; tibiæ about three-fourths the length of the femora; tarsi not equaling the tibiæ in length. Posterior femora with four spines on the distal half of the anterior margin, posterior margin with three median spines, genicular spine very short and stout; tibiæ one and one-fourth the length of the femora; tarsi about half the length of the femora, metatarsi slightly shorter than the other joints combined, pulvilli of the metatarsi extending to the base of the joint as a narrow line, flanked by a row of minute teeth; arolia of rather large size.

General color, wood brown, on the thoracic segments obscurely punctate with darker brown. Cephalic boss and disk of the pronotum and the median portions of the meso- and metanotum reddish brown. Posterior margins of the thoracic and abdominal segments edged with dark brown. Eyes blackish brown, mottled with paler brown. Antennæ gray brown, except the basal joint, which is unber.

MEASUREMENTS.

	mm.
Length of body	26.5
Length of pronotum.....	8.5
Greatest width of pronotum.....	14.0
Greatest width of mesonotum.....	17.5
Greatest width of abdomen	15.0

Subfamily BLATTINÆ (*Periplanetine auct.*)

Genus DORYLAEA Stål.

1877. *Dorylaea* STÅL, Öfversigt af Kongl. Vetenskaps-Akadem. Förhandlingar, 1877, No. 10, p. 37.

Type.—*D. brunneri* Stål.

DORYLAEA RHOMBIFOLIA (Stoll).

1813. [*Blatta*] *Rhombifolia* STOLL, Natuurlijke Afbeeldingen en Beschrijvingen; De Kakkerlakken, pp. 5 and 14, pl. III d, fig. 3.

One male; Mananjara, Madagascar, May 28, 1895. (Dr. W. L. Abbott.) [U.S.N.M.]

DORYLAEA PICEA (Brunner).

1865. *Periplaneta picea* BRUNNER, Nouv. Syst. Blatt., p. 223; Sambelong Island, Nicobar group.

One male and one female; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.]

Genus BLATTA Linnæus.

1758. *Blatta* LINNÆUS, Syst. Nat., 10th ed., v. 424.

Type.—*Blatta orientalis* Linnæus.

BLATTA ORIENTALIS Linnæus.

1758. [*Blatta*] *orientalis* LINNÆUS, Syst. Nat., 10th ed., p. 424; "America, Oriente: imprimis in farina, Pane, etc., hodie in Russiæ adjacentibus regionibus frequens: incepit nuperis temporibus Holmiæ, uti dudum in Finlandia."

Three immature males: Yokohama, Japan. (Rev. H. Loomis.)
[A. N. Candell.] Kioto, Japan. (Y. Hirase.) [A. N. S. Phila.]

BLATTA SENECTA, new species.

Type.—Female: Zulu Mission, South Africa. [A. N. S. Phila.]

Closely allied to *B. anthracina* (Brancsik)^a from the Zambesi region, but differing in the smaller size, the truncate sixth dorsal abdominal segment, and the undivided supra-anal plate.

Size medium; form subovate; dorsal surface, except the anterior and lateral margins of the pronotum punctate, becoming rugose and subcoriaceous in character on the abdomen. Head projecting beyond the pronotum, the anterior border arcuate; interspace between the eyes one and two-thirds of that between the ocelli; ocelli rather small, well removed from the eyes; antennæ almost equaling the body in length, second and third segments subequal in length; eyes rather elongate, irregularly reniform, the greatest depth anterior. Pronotum broader than long; the anterior and lateral margins rather evenly arcuate, a slight truncation anteriorly; posterior margin truncate, lateral angles rather narrowly rounded; the pronotum arcuate transversely. Mesonotum and metanotum with the posterior margins broadly and evenly emarginate. Tegmina very slightly exceeding the mesonotum in length, costal margin arcuate, apex subtruncate. Abdomen with the posterior margins of the dorsal aspect of the six basal segments truncate or subtruncate; seventh segment with the margin sinuate, the slightly produced median portion being very broadly and very shallowly emarginate. Supra-anal plate produced, subtriangular, tectate; apex broadly rounded. Cerci subfusiform, depressed greatest width proximal, apex acuminate. Subgenital plates together rostrate, triangular, the apical angles acute. Anterior femora with twelve spines on the median and apical portions of the anterior margin, the median and extreme apical ones largest, posterior margin with two spines on the apical portion, the terminal one very large, no genicular spine present; tibiæ about three-fourths the length of the femora; tarsi slightly exceeding the tibiæ in length, metatarsi slightly exceeding the terminal tarsal joint in length, pulvilli extending two-thirds the way to the base of the metatarsi. Median femora with six spines on the median and distal portions of the anterior margin, posterior margin with five evenly distributed spines, genicular

^aJahresheft des Naturwissenschaftlichen Vereines des Trencsener Comitates, XVII-XVIII, p. 244, pl. vii, fig. 2.

spine equal to the spines on the posterior margin in length; tibiæ about equal to the femora in length; tarsi slightly shorter than the tibiæ, metatarsi not quite equal to the remaining joints in length, pulvilli extending almost to the base of the metatarsi. Posterior femora with five spines on the median and distal portions of the anterior margin, posterior margin with five spines, genicular spine rather small; tibiæ about one and one-fourth the length of the femora; tarsi equal to the femora in length, metatarsi equal to the remaining joints of the tarsi in length, pulvilli of the metatarsi small and apical, the lower surface bearing two parallel rows of moderately sized spines, arolia rather small.

General color dull blackish to blackish brown. Apical margins of the clypeus and labrum dull orange.

MEASUREMENTS.

Length of body	mm. 17.5
Length of pronotum	5.0
Greatest width of pronotum.....	7.0
Greatest width of metanotum	8.5
Length of tegmina.....	3.0
Greatest width of tegmina	2.1
Greatest width of abdomen.....	8.7

Genus PERIPLANETA Burmeister

1838. *Periplaneta* BURMEISTER, Handb. d. Entom., II, p. 502.

Type.—*Blatta americana* Linnaeus.^a

PERIPLANETA PALLIPALPIS (Serville).

1839. *Kakerlac pallipalpis* SERVILLE, Orthoptères, p. 71; Java.

Nine specimens; two males, seven females: Kioto, Japan. (Y. Hirase.) no. 37. [A. N. S. Phila.]

PERIPLANETA AUSTRALASIÆ (Fabricius).

1793. [*Blatta*] *australasiæ* FABRICIUS, Ent. Syst., II, p. 7; "Capta frequens in nave e mari pacifico & regionibus Australasiæ revertente."

Seven specimens; two females; five larvæ; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.] Batu Sangkar, Padangsche Bovenland, Sumatra. Aug.-Sept., 1901. (A. C. Harrison, jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] Africa. [A. N. S. Phila.]

PERIPLANETA TRUNCATA Krauss.

1892. *Periplaneta truncata* KRAUSS, Zoologischer Anzeiger, XV, p. 165; Teneriffe; Brazil; New Britain.

Six specimens; two males, two females, two immature individuals; Batu Sangkar, Padangsche Bovenland, Sumatra. Aug.-Sept., 1901. (A. C. Harrison, jr., and Dr. H. M. Hiller.) [A. N. S. Phila.]

^a According to Rehn, Trans. Amer. Ent. Soc., XXIX, 1903, p. 279.

Genus TEMNELYTRA Tepper.

1893. *Temnellytra* TEPPER, Trans. and Proc. and Rep. Royal Soc. South Aust., XVII, p. 39.

Type.—*T. harpuri* Tepper.

TEMNELYTRA HARPURI Tepper?

1893. *Temnellytra harpuri* TEPPER, Trans. and Proc. and Rep. Royal Soc. South Aust., XVII, p. 39; Cygnet River and Karatta, Kangaroo Island, South Australia.

One larval specimen; Australia. (Koebele.) [U.S.N.M.]

This specimen is referred here with some little doubt, as the coloration does not wholly agree with the original description. This, of course, may be due to the immature condition, as the specimen is not as far advanced as the larva mentioned by Tepper.

Genus DEROPELTIS Burmeister.

1838. *Deropeltis* BURMEISTER, Handb. d. Entom., II, p. 486.

Type.—*D. erythrocephala* (Fabricius).^a

DEROPELTIS GABOONICA, new species.

Type.—Female; Gaboon River, West Africa. (Rev. M. Nassau.) [Acad. of Nat. Sci. Phila.]

Allied to *D. schweinfurthi* Saussure,^b from East Africa, but differing in the broader pronotum, the stouter and heavier limbs, the very much shorter posterior metatarsi, and the broader and more rounded supra-anal plate. From *D. speiseri* Brancsik,^c from the Zambesi region, it can be immediately differentiated by the much smaller size; while *D. tullbergi* Borg,^d from the Kamerun country, appears to be very different in character, though little comparison can be instituted, as it is based on the male.

Size rather large; form robust, very slightly depressed, subovate; surface covered with exceedingly minute reticulations. Head projecting, anterior border very slightly arcuate; interspace between the ocelli about three-fifths that between the eyes; ocelli very small, distant from the eyes; eyes elongate pyriform, the greatest depth anteriorly; antennæ about two-thirds the length of the body, third joint slightly longer than the first joint. Pronotum transverse; the ante-

^aThe original genus contained two species—*verticalis* Burmeister (= *capensis* Fabricius) and *erythrocephala* Fabricius. Of these two the latter can be selected as the type.

^bAnn. Mus. Civ. Stor. Nat. Genova, XXXV, p. 79.

^cJahresheft des Naturwissenschaftlichen Vereines des Trencsener Comitates, XVII-XVIII, p. 245, pl. vii, fig. 3.

^dBihang till K. Svenska Vet.-Akad. Handl., XXVIII, 1903, no. 10, p. 16.

rior margin truncate, lateral margins arcuate, the antero-lateral angles rounded; posterior margin truncate, the postero-lateral angle produced posteriorly into an acute process; the pronotum as a whole strongly arched transversely. Mesonotum and metanotum with the posterior margin emarginate, the latter having a low acute median process; lateral angles developed similar to the postero-lateral angles of the pronotum. Abdomen with the four basal and the sixth dorsal segments with the posterior margins truncate; fifth segment arcuate, with a very wide and shallow median emargination; seventh segment roundly produced, apex undulate, a distinct cercal emargination is developed, which is bordered externally by a distinct spiniform, posteriorly directed process, a structure developed on the lateral angles of all the segments. Supra-anal plate produced, arcuate. Cerci short, not equaling the supra-anal plate, hastate, apex acuminate, very slightly depressed. Subgenital plate transverse; median portion produced, the margin very obtuse angulate. Anterior femora with twelve spines on the anterior margin, posterior margin bearing one apical spine; tibiæ about two-thirds the length of the femora; tarsi equal to the tibiæ in length, terminal joint slightly longer than the metatarsi, the pulvilli of the latter being triangular and apical. Posterior femora with five spines on the anterior margin, the apical exceeding the others in length, posterior margin with four spines, the basal one small, genicular spine equal to the apical spine on the anterior margin in size; tibiæ distinctly quadrate, one and one-third the length of the femora; tarsi not quite equal to the femora in length, terminal joints slightly shorter than the metatarsi, the pulvilli of the latter triangular and apical, the lower surface of the metatarsi supplied with two longitudinal rows of depressed teeth, arolia quite small.

General color very dark vinaceous, almost black; limbs reddish-brown; tarsal joints very pale; lower margins of the clypeus and labrum dull ochraceous.

MEASUREMENTS.

	mm.
Length of body	25.5
Length of pronotum	8
Greatest width of pronotum	12
Greatest width of mesonotum	14
Greatest width of abdomen	15

Subfamily PANCHLORINÆ.

Genus PYCNOSCELUS Scudder.

1863. *Pycnoscelus* SCUDDER, BOSTON JOURNAL Nat. Hist., VII, p. 421.

Type.—*Pycnoscelus obscurus* Scudder = *Blatta surinamensis* Linnaeus.

PYCNOSCELUS SURINAMENSIS (Linnæus).

1758. [*Blatta*] *surinamensis* LINNÆUS, Syst. Nat., 10 ed., p. 424; Surinam.

Five specimens; one female, four immature specimens; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.] Batu Sangkar, Padangsche Bovenland, Sumatra. Aug.-Sept., 1901. (A. C. Harrison, jr., and Dr. H. M. Hiller.) [A. N. S. Phila.]

Genus GYNA Brunner.

1865. *Gyna* BRUNNER, Nouv. Syst. Blatt., p. 266.

Type.—*G. capucina* Gerstaecker (= *maculipennis* Brunner, not of Schaum).^a

GYNA BUCHHOLZI Gerstaecker.

1883. *Gyn*[a] *Buchholzi* GERSTAECKER, Mittheil. Naturwissensch. Ver. Neu-Vorpomm. und Rügen, XIV, p. 72; Fernando Po and Cameroons, West Africa.

One female; Gaboon River, West Africa. (Rev. M. Nassau.) [A. N. S. Phila.]

Subfamily POLYPHAGINÆ.

Genus DYSCOLOGAMIA Saussure.

1893. *Dyscologamia* SAUSSURE, Revue Suisse de Zoologie, I, Pt. 2, p. 297.

Included *cecticulata* Sauss., *curvicauligera* (Gerstaecker), *nepalensis* Saussure, *capucina* (Brunner), and *capensis* Saussure. Of these the first may be selected as the type.

DYSCOLOGAMIA CESTICULATA Saussure.

1893. *Dyscologamia cesticulata* SAUSSURE, Revue Suisse de Zoologie, I, Pt. 2, p. 298; Singapore.

One female; Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.] Kirby^b has recorded this species from Selangore.

Subfamily PERESPHERINÆ.

Genus PARANAUPHÆTA Brunner.

1865. *Paranauphæta* BRUNNER, Nouv. Syst. Blatt., p. 397.

Type.—*P. circumdata* (Haan). This is selected as the type on the basis of Brunner's figure.

^aI have selected this as the type of the genus, as Brunner has given a figure of the same.

^bAnn. and Mag. Nat. Hist., 7th ser., XI, p. 406.

PARANAUPHÆTA LYRATA Burmeister.

1838. *N[anphata] lyrata* BURMEISTER, Handb. d. Entom., II, p. 508, Java.

Two females: Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.]

This species has been recorded from Borneo, Java, Sumatra, Malacca, Johore, and Assam.

Subfamily PANESTHINÆ.

Genus PANESTHIA Serville.

1831. *Panesthia* SERVILLE, Ann. Sci. Nat., XXII, p. 38.

Type.—*P. javanica* Serville.

PANESTHIA JAVANICA Serville.

1831. *Panesthia javanica* SERVILLE, Ann. Sci. Nat., XXII, p. 38; Java.

Four females (three larval): Trong, Lower Siam. (Dr. W. L. Abbott.) [U.S.N.M.]

This species has been recorded from Burma and Cambodia to Java.

PANESTHIA CETRIFERA, new species.

Type.—Female: Australia (Koebele) [U.S.N.M.] Closely allied to *P. ferruginipes* Brunner,^a from an unknown locality, but differing in the more reddish-brown coloration, and the bispinose anterior femora.

Size medium; form depressed, elongate ovoid, apex anterior; surface punctate, very sparsely so anteriorly and increasing in intensity until on the supra-anal and subgenital plates it is distinctly cribose. Head projecting slightly beyond the pronotum, the anterior border arcuate; interocular space very broad, considerably greater than that between the ocelli; ocelli very minute, distant from the eyes; antennæ hardly equal to the pronotum in length, third joint not quite equal to the first; eyes pyriform, apex posteriorly. Pronotum transverse; anterior margin subtruncate; lateral margins arcuate; the anterolateral angles rounded; posterior margin subtruncate, slightly emarginate laterally; postero-lateral angles obtuse, the extreme angle rounded; pronotum as a whole arcuate transversely. Mesonotum and metanotum with the median portion and lateral angles of the posterior margins moderately produced. Abdomen with the posterior margin of the first and second dorsal segments arcuate, of the third and fourth transverse, of the fifth and sixth shallow emarginate, the lateral angles of all bluntly produced posteriorly; seventh dorsal segment large, with the posterior margin truncate, the lateral angles produced posteriorly as sharp dentiform processes. Supra anal plate large, transverse, the posterior margin arcuate, distinctly crenulate.

^a Ann. Mus. Civ. Stor. Nat. Genova, XXXIII, 1893, p. 53.

the cereal emargination distinct and bordered internally by a strongly developed, broad, dentiform process. Cerci very short and broad, triangular, depressed. Subgenital plate very broad, the margin rotundate; the cereal emarginations quite distinct, and bordered externally by a very distinct shoulder. Anterior femora with the anterior margin bearing two closely placed median spines, posterior margin with a very stout apical spine, no genicular spine present; tibiae about two-thirds the length of the femora; tarsi about two-thirds the length of the tibiae, the terminal joint equal to all the others in length. Median femora with both margins unarmed, no genicular spine present; tibiae almost equal to the femora in length; tarsi slightly shorter than the tibiae, metatarsi about equal to the terminal joint in length. Posterior femora with the margins unarmed, no genicular spine present; tibiae exceeding the femora by about one-fourth the length of the latter; tarsi about two-thirds the length of the tibiae, metatarsi and the terminal joints subequal, arolia absent.

General color dark reddish-brown, becoming ochraceous brown on the limbs. Eyes pitch black. Lower portion of clypeus golden ochraceous, the labrum ochraceous brown.

MEASUREMENTS.

	<i>mm.</i>
Length of body	19
Length of pronotum	4.5
Greatest width of pronotum	7
Greatest width of mesonotum	8.5
Greatest width of metanotum	9.1
Greatest width of abdomen	10